AMENDMENTS TO THE CLAIMS

1. (Previously Presented) A micro-lens array, comprising:

a first set of micro-lenses comprising a plurality of first micro-lenses each having a first size and corresponding to a first color; and

a second set of micro-lenses comprising a plurality of second micro-lenses each having a second size and corresponding to a second color,

wherein at least one of said plurality of first micro-lenses at least abuts without overlapping at least one of said plurality of second micro-lenses,

wherein a number of said plurality of first micro-lenses is greater than a number of said plurality of second micro-lenses, and

wherein said first and second sets of micro-lenses are regularly distributed throughout said micro-lens array in accordance with a predetermined color pattern for image capture.

2. (Previously Presented) The micro-lens array of claim 1, further comprising a third set of micro-lenses comprising a plurality of third micro-lenses each having a third size and corresponding to a third color, said third set of micro-lenses being regularly distributed throughout said micro-lens array in accordance with said predetermined color pattern.

3. (Original) The micro-lens array of claim 2, wherein said first, second, and third sizes are equal to each other.

4. (Original) The micro-lens array of claim 1, wherein a focal length of each of said plurality of first micro-lenses is approximately equal to a focal length of each of said plurality of second micro-lenses.

5. (Original) The micro-lens array of claim 1, wherein a focal length of each of said plurality of first micro-lenses corresponds to a first wavelength of light, and wherein a focal length of each of said plurality of second micro-lenses corresponds to a second wavelength of light.

6. (Previously Presented) A micro-lens array, comprising:

a first set of micro-lenses comprising a plurality of first micro-lenses;

a second set of micro-lenses comprising a plurality of second micro-lenses; and

a third set of micro-lenses comprising a plurality of third micro-lenses,

wherein said first micro-lenses at least abut without overlapping said second and third micro-lenses,

wherein a number of said plurality of first micro-lenses is greater than a number of said plurality of second micro-lenses, and

wherein said first, second, and third sets of micro-lenses are regularly distributed throughout said micro-lens array in accordance with a predetermined color pattern for image capture.

7. (Original) The micro-lens array of claim 6, wherein said first micro-lenses have a first size and said second micro-lenses have a second size, said second size being no smaller than said first size.

8. (Original) The micro-lens array of claim 6, wherein said first, second, and third micro-lenses each have approximately a same focal length.

9. (Original) The micro-lens array of claim 6, wherein a focal length of each of said plurality of first micro-lenses corresponds to a first wavelength of light, wherein a focal length of each of said plurality of second micro-lenses corresponds to a second wavelength of light, and wherein a focal length of each of said plurality of third micro-lenses corresponds to a third wavelength of light.

10. (Canceled)

11. (Original) The micro-lens array of claim 6, wherein said first, second and third sizes are equal to each other.

12. (Previously Presented) A micro-lens array, comprising:

a first set of micro-lenses comprising a plurality of first micro-lenses; and

a second set of micro-lenses comprising a plurality of second micro-lenses,

wherein said first micro-lenses exhibit different optical transmission properties than said second micro-lenses,

wherein said first micro-lenses abut said second micro-lenses without overlapping,

wherein a number of said plurality of first micro-lenses is greater than a number of said plurality of second micro-lenses, and

wherein said first and second sets of micro-lenses are regularly distributed throughout said micro-lens array in accordance with a predetermined color pattern for image capture.

13. (Previously Presented) The micro-lens array of claim 12, comprising a third set of micro-lenses comprising a plurality of third micro-lenses, said third set of micro-lenses being regularly distributed throughout said micro-lens array in accordance with said predetermined color pattern.

14. (Original) The micro-lens array of claim 13, wherein said third micro-lenses exhibit different optical transmission properties than at least one of said first and second micro-lenses.

15. (Original) The micro-lens array of claim 14, wherein said third micro-lenses exhibit different optical transmission properties than both said first and second micro-lenses.

16. (Original) The micro-lens array of claim 13, wherein said first micro-lenses abut said second and third micro-lenses.

17. (Currently Amended) A ~~semiconductor-based~~ semiconductor imager, comprising:

a pixel array having embedded pixel cells, each with a photosensor; and a micro-lens array, comprising:

a first set of micro-lenses comprising a plurality of first micro-lenses each having a first size; and

a second set of micro-lenses comprising a plurality of second micro-lenses each having a second size,

wherein the micro-lens array is substantially space-less between at least one of said plurality of first micro-lenses and at least one of said plurality of second micro-lenses,

wherein a number of said plurality of first micro-lenses is greater than a number of said plurality of second micro-lenses, and

wherein said first and second sets of micro-lenses are regularly distributed throughout said micro-lens array in accordance with a predetermined color pattern for image capture.

18. (Currently Amended) The ~~semiconductor-based~~ semiconductor imager of claim 17, wherein said first size is different than said second size such that pixel cells corresponding to said second micro-lenses receive a greater amount of light than pixel cells corresponding to said first micro-lenses.

19. (Currently Amended) The ~~semiconductor-based~~ semiconductor imager of claim 18, wherein said first micro-lenses correspond to green pixel cells, and wherein said second micro-lenses correspond to red and/or blue pixel cells.

20. (Currently Amended) The ~~semiconductor-based~~ semiconductor imager of claim 17, wherein said micro-lens array further comprises a third set of micro-lenses comprising a plurality of third micro-lenses each having a third size, said third set of micro-lenses being regularly distributed throughout said micro-lens array in accordance with said predetermined color pattern.

21. (Currently Amended) The ~~semiconductor-based~~ semiconductor imager of claim 20, wherein the micro-lens array is substantially space-less between said pluralities of first, second, and third micro-lenses.

22. (Currently Amended) The ~~semiconductor-based~~ semiconductor imager of claim 20, wherein a focal length of each of said plurality of first micro-lenses is equal to a focal length of each of said plurality of second micro-lenses and a focal length of each of said plurality of third micro-lenses.

23. (Currently Amended) The ~~semiconductor-based~~ semiconductor imager of claim 20, wherein focal lengths of each of the pluralities of first, second, and third micro-lenses are adjusted for a specific color signal.

24. (Currently Amended) A ~~semiconductor-based~~ semiconductor imager, comprising:

a substrate having pixel cells formed thereon, each with a photosensor; and

a micro-lens array for presenting an image for said pixel cells, said micro-lens array comprising:

a first plurality of first micro-lenses each having a first size; and

a second plurality of second micro-lenses each having a second size larger than said first size,

wherein said second micro-lenses are adapted to collect a greater amount of light than said first micro-lenses,

wherein at least one of said second micro-lenses abuts without overlapping at least one of said first micro-lenses,

wherein a number of said plurality of first micro-lenses is greater than a number of said plurality of second micro-lenses, and

wherein said first and second sets of micro-lenses are regularly distributed throughout said micro-lens array in accordance with a predetermined color pattern for image capture.

25. (Currently Amended) The ~~semiconductor-based~~ semiconductor imager of claim 24, wherein said first and said second micro-lenses each exhibit a similar focal length.

26. (Currently Amended) The ~~semiconductor-based~~ semiconductor imager of claim 25, wherein said focal length extends to said photosensors.

27. (Currently Amended) The ~~semiconductor-based~~ semiconductor imager of claim 24, wherein a focal length of the plurality of first micro-lenses is adjusted for a first color signal, and wherein a focal length of the plurality of second micro-lenses is adjusted for a second color signal.

28-29. (Canceled)

30. (Currently Amended) The ~~semiconductor-based~~ semiconductor imager of claim 24, further comprising a color filter array positioned over said pixel cells.

31. (Currently Amended) The ~~semiconductor-based~~ semiconductor imager of claim 30, wherein said color filter array is positioned between said micro-lens array and said substrate.

32. (Currently Amended) The ~~semiconductor-based~~ semiconductor imager of claim 24, further comprising a light shield positioned between said micro-lens array and said substrate.

33. (Currently Amended) The ~~semiconductor-based~~ semiconductor imager of claim 24, wherein said micro-lens array further comprises a third plurality of third micro-lenses each having a third size, said third set of micro-lenses being regularly distributed throughout said micro-lens array in accordance with said predetermined color pattern.

34. (Currently Amended) The ~~semiconductor-based~~ semiconductor imager of claim 33, wherein said first and third sizes are equal.

35. (Currently Amended) The ~~semiconductor-based~~ semiconductor imager of claim 33, wherein at least one of said first micro-lenses abuts at least one of said second micro-lenses and at least one of said third micro-lenses.

36. (Currently Amended) A ~~semiconductor-based~~ semiconductor imager, comprising:

a substrate having pixel cells formed thereon, each with a photosensor; and

a micro-lens array for presenting an image for said pixel cells, said micro-lens array comprising:

a first set of micro-lenses comprising a plurality of first micro-lenses each having a first size; and

a second set of micro-lenses comprising a plurality of second micro-lenses each having a second size no smaller than said first size,

wherein said second micro-lenses are each positioned in a space between adjacent said first micro-lenses such that said second micro-lenses contact without overlapping said first micro-lenses,

wherein a number of said plurality of first micro-lenses is greater than a number of said plurality of second micro-lenses, and

wherein said first and second sets of micro-lenses are regularly distributed throughout said micro-lens array in accordance with a predetermined color pattern for image capture.

37. (Currently Amended) The ~~semiconductor-based~~ semiconductor imager of claim 36, further comprising a color filter array positioned over said pixel cells.

38. (Currently Amended) The ~~semiconductor-based~~ semiconductor imager of claim 37, wherein said color filter array is positioned between said micro-lens array and said substrate.

39. (Currently Amended) The ~~semiconductor-based~~ semiconductor imager of claim 36, wherein said second size is larger than said first size.

40. (Currently Amended) The ~~semiconductor-based~~ semiconductor imager of claim 36, wherein said first and said second micro-lenses each exhibit a similar focal length.

41. (Currently Amended) The ~~semiconductor-based~~ semiconductor imager of claim 40, wherein said focal length extends to said photosensors.

42. (Currently Amended) The ~~semiconductor-based~~ semiconductor imager of claim 36, wherein a focal length of the plurality of first micro-lenses is adjusted for a first color signal, and wherein a focal length of the plurality of second micro-lenses is adjusted for a second color signal.

43. (Canceled)

44. (Currently Amended) The ~~semiconductor-based~~ semiconductor imager of claim 36, wherein said micro-lens array further comprises a third plurality of third micro-lenses each having a third size, said third set of micro-lenses being regularly distributed throughout said micro-lens array in accordance with said predetermined color pattern.

45. (Currently Amended) The ~~semiconductor-based~~ semiconductor imager of claim 44, wherein said first, second, and third sizes are equal.

46-55. (Canceled).

56. (Currently Amended) The ~~semiconductor-based~~ semiconductor imager of claim 33, wherein said second and third sizes are equal.

57. (Previously Presented) The micro-lens array of claim 1, wherein said predetermined color pattern comprises a Bayer pattern.

58. (Previously Presented) The micro-lens array of claim 6, wherein said predetermined color pattern comprises a Bayer pattern.

59. (Previously Presented) The micro-lens array of claim 12, wherein said predetermined color pattern comprises a Bayer pattern.

60. (Currently Amended) The ~~micro-lens array~~ semiconductor imager of claim 17, wherein said predetermined color pattern comprises a Bayer pattern.

61. (Currently Amended) The ~~micro-lens array~~ semiconductor imager of claim 24, wherein said predetermined color pattern comprises a Bayer pattern.

62. (Currently Amended) The ~~micro-lens array~~ semiconductor imager of claim 36, wherein said predetermined color pattern comprises a Bayer pattern.